第１４８回触媒化学研究センター談話会

演題：Electrochemical Investigations on Micro-contamination of Si Wafer Surfaces by Multiple Metal Ions

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日時：平成 15 年 4 月 25 日（金）15：00～16：30

場所：理学部5号館5-304教室

講演内容：

Micro-contamination of silicon wafer surfaces was investigated by performing a series of electrochemical measurements in dilute HF solutions containing different concentrations of copper (Cu^{2+}), silver (Ag^{+}), iron (Fe^{3+}), nickel (Ni^{2+}) and calcium (Ca^{2+}). The dc polarization curves and ac impedance spectra were obtained in the absence and presences of 2-, 3- and 4-metal combinations. The metallically contaminated wafer surfaces were subsequently examined by SEM and XPS techniques to study their morphologies and chemical compositions that are related to metal deposition occurred at the wafer surfaces.

The electrochemical dc polarization and ac impedance techniques were found to be very sensitive to the trace amounts of Cu, Ag and Cu-Ag combination presented in the solutions. The values of polarization resistance significantly reduced in the presences of these metal ions, indicating the acceleration of metal deposition. Copper or / and silver coagulations and the formation of metal clusters were also observed with the increase of metallic concentrations and depositing time. However, the electrochemical behaviors of silicon wafer surfaces contaminated by Cu, Fe, Ni and Ca in 2-, 3- and 4-metal combinations became more complicated. Possible mechanism is discussed.

皆様のご来聴をお待ちしております。

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